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22850	7590	01/21/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			KIM, CHRISTOPHER S	
			ART UNIT	PAPER NUMBER
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16

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Paper No. 16

Application Number: 09/750,664  
Filing Date: January 02, 2001  
Appellant(s): FUKUMOTO ET AL.

**MAILED**  
JAN 21 2004  
**GROUP 3700**

\_\_\_\_\_  
Gregory J. Maier  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed November 3, 2003.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

No amendment after final has been filed.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

Appellant's brief includes a statement that claims 1-3 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

**(8) *Claims Appealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(9) *Prior Art of Record***

4,046,074                      Hochberg, deceased et al.      9-1977

**(10) *Grounds of Rejection***

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 112***

Claims 1-3 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellant regards as the invention.

The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Regarding claim 1:

It is noted that appellant has elected Species A, figure 1 for examination in Paper No. 6.

Claim 1 recites “a field applier forming an equipotential surface” in line 3. The “field applier” appears to be in reference to the DC voltage source 5. If so, what is the “equipotential surface”? If the “equipotential surface” is in reference to the conductive nozzle plate 3, the “field applier forming an equipotential surface” appears to be a double inclusion of the “liquid holder” recited in line 2.

The first limitation following the preamble recites “a liquid holder exposing a liquid surface of conductive liquid sprayed on an object.” Appellant’s specification, starting on page 6, line 25, recites, “The inkjet head 101 comprises ultrasonic generation means 1 generating thickness longitudinal vibration, for example, and a conductive nozzle plate 3 and stores conductive ink 21 therebetween.” One can only conclude, in light of the specification, that the “liquid holder” recited in claim 1 is in reference to ultrasonic generation means 1 and conductive nozzle plate 3. Even if the broadest reasonable

interpretation is given, the "liquid holder" must at a minimum include conductive nozzle plate 3 since it is required to hold the liquid (ink).

The second limitation in claim 1 recites "a field applier forming an equipotential surface convexed with respect to the liquid surface of a conductive liquid sprayed on an object." The indefiniteness arises in interpreting the recitation "field applier" and "equipotential surface." The specification provides no help understanding of the phrase "field applier," and therefore, is given the plain meaning: something which applies a field. In light of appellant's area of endeavor, "field" is considered to mean a region of space, i.e. electric field. In the art, the phrase "equipotential surface" can be used in reference to a **physical** surface which possesses an "equipotential" characteristic. Contrarily, it appears that appellant is using the phrase "equipotential surface group" in reference to a "field" which possesses an "equipotential" characteristic (see appellant's specification, page 7, lines 17-25).

First approach: "Equipotential surface" is interpreted to mean a physical surface which possesses an equipotential characteristic. The "field applier" forms (is made up by) an equipotential surface (a physical surface) which is convexed with respect to the liquid surface of a conductive liquid sprayed to an object. The only surface, in figure 1, which meets such a definition is the surface of the conductive nozzle plate 3 which faces paper 200. The conductive nozzle plate 3 has a convexed surface 321 with respect to the liquid surface of a conductive liquid 21 sprayed on an object (paper) 200. As explained above, the conductive nozzle plate 3 is claimed as part of the "liquid hold."

Therefore, the "field applier" as defined by appellant's claim is a double inclusion of the "liquid holder." The claim is indefinite.

Second approach: "Equipotential surface" is interpreted to mean one of the surfaces in the electric field represented by lines 51. The claim limitation "a field applier forming an equipotential surface convexed..." can only be interpreted to mean a "field applier" which produces an "equipotential surface" (in the electric field, one of the lines 51). Therefore, the "field applier" must include the dc voltage source 5, the conductive nozzle plate 3, and the back plate 4 because all three elements are required to form/produce the equipotential surface which is convexed with respect to the liquid surface of a conductive liquid (ink) 21 sprayed on an object (paper) 200. See appellant's specification, page 7, lines 17-22. Again, the conductive nozzle plate 3 is included in the recitation "liquid holder" and in the recitation "field applier" resulting in a double inclusion of the conductive nozzle plate 3. The claim is indefinite.

No other interpretation seems possible. Since no definite interpretation can be derived from the claim, as recited, the claim remains indefinite.

Regarding claim 2:

Claim 2 recites "a conductive nozzle plate" in line 2. It appears to be a double inclusion of the "liquid holder" recited in line 2 and/or the "field applier" recited in claim 1, line 3.

Regarding claim 3 pertinent to the first approach above:

Claim 3 recites “a concave portion” in line 3. It appears to be a double inclusion of the “equipotential surface convexed with respect to the liquid surface” recited in claim 1, lines 3-4.

***Claim Rejections - 35 USC § 102***

Claims 1-3 (as best understood) stand rejected under 35 U.S.C. 102(b) as being anticipated by Hochberg, deceased et al. (4,046,074).

Hochberg et al. discloses a liquid sprayer comprising: a liquid holder 30; a field applicator 40, 42; a conductive nozzle plate 30; a first opening 44; a second opening (concave portion of 30); an object 12. Conductive nozzle plate 30 has an external surface which possesses an equipotential characteristic since nozzle plate 30 is a homogeneous material. The material across the surface of nozzle plate 30 does not change (see the consistent cross hatching in figures 3B, 4B, and 5B of Hochberg).

***(11) Response to Argument***

Appellant argues that “equipotential surface is not the same as an electric field line, but rather electric field lines extend in a direction perpendicular to the equipotential surface at all points along the equipotential surface.” Such may be inherent, but it is not the basis of the rejection under 35 U.S.C. 112, second paragraph. As indicated above, “surface” has been interpreted to mean a physical surface or one of the surfaces in the “equipotential surface group 51” (see appellant’s specification, page 7, line 21).

Appellant argues that “equipotential surface” is known in the art. The examiner does not refute this contention. Appellant provides evidence of the use of the phrase “equipotential surface” in describing a field element. US Patent No. 5,765,761 to Law et

al. is also evidence of the use of the phrase "equipotential surface" in describing a physical surface (Law et al., column 7, lines 20-25). The examiner only asserts that appellant's **claim construction** renders the claims indefinite, as detailed above.

Appellant argues that appellant's application describes a non-limiting embodiment and that claim 1 additionally encompasses embodiments where the nozzle plate of the field applier and the liquid holder are constructed of different structures. Again, the examiner does not refute appellant's contention that claim 1 can encompass other embodiments. But it is crucial that claim 1 encompass elected Species A, figure 1. Appellant has made the election in Paper No. 6 and has identified that claims 1-3 correspond to the elected species. If claim 1 reads on an embodiment where the nozzle plate is part of the field applier and not a part of the liquid holder, claim 1 does not read on the elected species of figure 1. But this cannot be since appellant has indicated that claims 1-3 read on the elected Species A of figure 1. On the basis that claims 1-3 read on the elected Species A of figure 1, the claims are indefinite for the reasons indicated above.

Appellant argues that claims 2 and 3 are also definite. For similar reasons indicated above, claims 2 and 3 recite double inclusions of the field applier.

In response to appellant's argument that Hochberg et al. does not disclose equipotential surface convexed with respect to a liquid surface exposed by the printing head 30, the rejection under 35 U.S.C. 102 is made in light of the interpretation used in the first approach in analyzing the claims for indefiniteness under 35 U.S.C. 112, second paragraph above. Hochberg et al. discloses a convexed surface with respect to



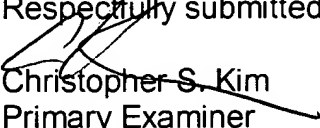
Art Unit: 3752


a liquid surface in figure 2A. Printing head 30 as shown in figure 2A is convexed with respect to the liquid surface which is upstream of orifice 44 as shown in figures 3B, 4B and 5B. Equipotential is defined as: Having equal potential. The American Heritage® Dictionary of the English Language, Third Edition copyright © 1992 by Houghton Mifflin Company. Therefore, the printing head 30 has an equipotential surface (external surface) especially when no voltage is applied as a result of the homogeneous material.


Appellant argues that figure 2A does not depict the surface of the conductive liquid surface, which may or may not parallel the surface of the printing head. See figures 3B, 4B and 5B which show liquid surface parallel to the printing head (liquid surfaces which are parallel to the plane which contain orifices 44).

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

  
Christopher S. Kim  
Primary Examiner  
Art Unit 3752

CK   
January 20, 2004

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